

schools in agricultural districts might well offer to lads who have passed through the successive standards, or as one addressed to the sons of farmers, and supplying that form of instruction which it is the duty of agricultural colleges to impart. Another lecture is offered on the management of poultry. This is more definite and more hopeful; and when we remember that the students who come up for these summer meetings are, for the most part, ladies, who can well be supposed to take an intelligent interest in this part of farming operations, we must admit that the subject is well chosen. Manures of various characters form the subject of the other two lectures, and will be doubtless of a sufficiently technical character.

The literature and history lectures are of special interest, and by the combination of many lecturers are made to cover with great completeness the mediæval period. Mr. Frederic Harrison gives, as an inaugural lecture, a survey of the thirteenth century, and strikes the keynote of this section; while in the entire course, which embraces some sixty lectures, we meet the names of Prof. Dicey, of Mr. York Powell, of Mr. Boas, and a host of others, affording alike a sufficient guarantee for the excellence of the work, and a happy augury for the success of the meeting.

THE PROPOSED TEACHING UNIVERSITY FOR LONDON.

ON Monday, at the Council Office in Downing Street the Universities Committee of the Privy Council, consisting of the Lord President of the Council (Viscount Cranbrook), the Earl of Selborne, Lord Monk Bretton, Lord Basing, and Lord Sandford, reassembled for the purpose of giving their decision on the petition of King's and University Colleges for the grant of a charter for the establishment of a Teaching University for London.

The Earl of Selborne, in giving the opinion of their Lordships upon the draft charter of the proposed University, said, with regard to the opposition of the existing University of London, that some of the objections made might be treated as disallowed. It had been understood by their Lordships that a minimum course of two years' study at the new University would be required. If that was so, their Lordships were satisfied, and would say no more upon the point. The objections put forward by the medical faculty were generally disallowed. The word "London" would have to be omitted from the charter, but the University might be called either "the Albert University" or "the Metropolitan University." With regard to the suggestion that ten members of the Faculty of Medicine should be elected to the Council, their Lordships were of opinion that the medical schools should fill five places upon that body, or, if it were preferred, that each school should elect one member for the Medical Board of Study. If the Royal Colleges and the medical schools agreed to come in together, however, the number of members on the Council might be raised. Their Lordships did not approve of the proposed strength of the Council, and thought that four of the places might be accorded to the Faculty of Law. Teachers in any branch of science, their Lordships considered, should be admitted as members of the Science Faculty, and the six places on the Council which it was proposed to give to the Royal Colleges should be supplied according to the 29th paragraph of the Royal Commissioners' Report. If the medical schools and colleges declined to come in at first, provision ought to be made to allow them to do so in the future. Their Lordships thought that a place upon the Council might be given to the Apothecaries' Society, but they were not disposed to insist upon that being done. The view of their Lordships upon the question of honorary degrees was that no such degrees should be granted in medicine, and that the holding of an honorary

degree should be no qualification for election to the Council. The ordinary degree in medicine should not be granted until the whole of the prescribed conditions had been fulfilled.

NOTES.

THE decision of the Universities Committee of the Privy Council with regard to the proposed new University for London is one that might have been expected from a body of non-experts. It is hasty, and will give satisfaction to no one by whom the subject has been seriously considered. It may throw back the higher teaching in London for half a century.

MR. WALTER BESANT, in an imaginary "Page from the Kaiser's Diary," notes that there are not to be seen at Court any of "the people who make the real greatness of the country—its traders, its manufacturers, its men of science, art, and literature." It has been remarked that in this respect the City Corporation, last Friday, followed the example of the Court, no representative of science, or literature, or art, as such, having been invited to the Guildhall banquet. It would have been better to follow the precedent set at the time of the Czar's visit, when a large number of the leading scientific men were asked to the reception at the Foreign Office, and were personally presented.

AT the ensuing British Association meeting at Cardiff, it is proposed to hold in Section A, if possible in conjunction with Section G, a discussion on "Units and their Nomenclature," having special regard to the new electrical and magnetic units now becoming necessary for practical purposes.

THE Secretary of State for India in Council has appointed, on the nomination of the Government of India, the following persons to represent it on the permanent governing body of the Imperial Institute, for the year ending April 30, 1892:—W. T. Thiselton-Dyer, C.M.G., F.R.S., Director, Royal Gardens, Kew; General James T. Walker, R.E., C.B., F.R.S., late Surveyor-General of India; John W. P. Muir-Mackenzie, Under-Secretary to the Government of India Revenue and Agricultural Department.

SIR J. D. HOOKER has been elected a Foreign Member of the Academy of Sciences in Buda-Pesth.

THE Secretary of State for the Colonies has appointed, on the nomination of Kew, Mr. C. A. Barber, late Scholar of Christ's College, Cambridge, and University Demonstrator in Botany, to be Superintendent of the recently created Agricultural Department of the Leeward Islands. The Superintendent will reside in Antigua, and will have the general supervision of the botanical stations at Antigua, Dominica, Montserrat, and St. Kitts-Nevis.

THE Council of University College, Liverpool, have appointed Mr. Francis Gotch, of Oxford, to their new Chair of Physiology.

THE Foreign Office has expressed the wish that the "Flora of Tropical Africa," prepared at Kew under the editorship of Prof. Oliver, and of which three volumes have appeared, should be continued and completed. It is calculated that four more volumes will be required, and the Treasury has sanctioned a scheme by which the necessary funds will be provided.

THE Accademia dei Lincei of Rome has awarded to Prof. Saccardo, of Padua, in acknowledgment of his labours in mycology, the Royal prize of 10,000 francs intended for the encouragement of morphological researches.

THE Government has appointed the Council of the Society of Arts as a Royal Commission to direct the formation of the British Section at the Chicago Exhibition. If we may judge from the preparations which are being made in America, the Exhibition is likely to be one of great splendour. One of its attractions will be a collection of objects relating to ethnology and archæology. This is being organized by Prof. Putnam.

A COMMITTEE, as we recently stated, has been appointed for the reorganization of the Natural History Museum in Paris. By some who interest themselves in the question it is proposed that the Museum should be made the only institution in Paris for the study of natural history. According to this scheme, all natural history chairs in the Sorbonne and elsewhere would be suppressed, while all chairs in the Museum which do not belong to natural history proper would also disappear. The professors would have to examine all candidates in natural science.

A COMMITTEE appointed by the Photographic Society of Great Britain has presented a report on the proposal that the photographic societies of the United Kingdom should unite more closely for the better promotion of their common interests. The Committee advises that it should be open to photographic societies to affiliate themselves to the Photographic Society of Great Britain; and suggestions are made as to the way in which affiliation should be effected.

THE fifth session of the Edinburgh Vacation Courses will begin on August 3. M. Espinas, Professor of Philosophy and Dean of the Faculty of Letters in the University of Bordeaux, has been charged by his Government to report upon the educational scheme and methods of these courses, and also desires to inquire into Scottish higher education generally. Dr. H. de Varigny, who will deliver a series of lectures on general biology, is also to report to the French Government on the University Extension movement. The expected presence of these and other foreigners has suggested the idea that it might be well to hold, at Edinburgh, a small informal Congress, or rather a short series of meetings, for the discussion of curricula, higher educational methods, and other questions of immediate interest. Particulars on this subject will shortly be announced.

THE Royal Society of Antiquaries of Ireland hold their general meeting in the Town Hall, Killarney, on August 11. Excursions are planned for every day, except Sunday, from August 11 to 20.

THE Royal Archæological Institute will hold its annual meeting at Edinburgh from August 11 to 18. Sir Herbert Maxwell will preside.

THE German Anthropological Society will hold its twenty-second annual meeting at Danzig, from August 3 to 5.

HER MAJESTY'S Commissioners for the Exhibition of 1851, assisted by a committee of gentlemen experienced in scientific education, have made the following appointments to Science Scholarships for the year 1891. The scholars have been *bonâ-fide* students of science for at least three years, and were nominated for the Scholarships by the authorities of their respective Universities or Colleges. The Scholarships are of the value of £150 a year, and are tenable for two years (subject to a satisfactory report at the end of the first year) in any University at home or abroad, or in some other institution to be approved of by the Commissioners. The scholars are to devote themselves exclusively to study and research in some branch of science the extension of which is important to the industries of the country. A Scholarship was offered to the University of Sydney, but the Council found themselves unable to nominate a suitable candidate. Nominating institution—University of Edinburgh, scholar—John Shields, institution to which scholar proposes to attach himself—University of Edinburgh and

a Continental University, probably Leipzig; University of Glasgow, James H. Gray (*a*), University of Glasgow; University of St. Andrews, William Frew, University of Munich; Mason Science College, Birmingham, John Joseph Sudborough, University of Heidelberg; University College, Bristol, Frederick Benjamin Fawcett (*a*), University College, Bristol; Durham College of Science, Newcastle-on-Tyne, William M'Connell, jun. (*a*), Durham College of Science; Yorkshire College, Leeds, Harry Ingle, a German University, probably Wurzburg; University College, Liverpool, Robert Holt (*a*), University College, Liverpool; Owens College, Manchester, Thomas Ewan, Owens College, first year; University College, Nottingham, Edwin H. Barton (*b*), South Kensington; Firth College, Sheffield, Annie J. Hoyles (*a*), Firth College, Sheffield; University College of South Wales and Monmouthshire, Franke Herbert Parker, first year same College, second year a German University; Queen's College, Belfast, Benjamin Moore, University of Leipzig; Royal College of Science for Ireland, Frederick William Dunn, first year University of Glasgow, second year Berlin; M'Gill University, Montreal, Percy Norton Evans, University of Berlin, and probably other German Universities; University of Melbourne, William Huey Steele (*a*), University of Melbourne. (*a*) These scholars have been recommended to spend part of the term of scholarship at some other institution. (*b*) This appointment is conditional on the candidate passing examination for B.Sc. London.

THOSE who require power for electric lighting may be interested to know that Messrs. Priestman Brothers have a good account to give of the success of their oil-engine. Many orders have been received for engines varying in size from 1 to 25 actual h.p. for electric lighting, and Messrs. Priestman, in order to meet the growing demand, have largely extended their works.

ACCORDING to a telegram sent through Reuter's Agency from San Francisco, July 11, an enormous cavern in Josephine County, Oregon, at a point twelve miles north of California and forty from the coast, has been discovered. It has two openings, and contains many passages of great beauty. There are numbers of semi-transparent stalactites, several giant milk-white pillars, and a number of pools and streams of clear, cool water. A week was spent in exploring the cavern, and innumerable passages and chambers were discovered. On penetrating one of these passages for a distance of several miles, the exploring party came across a lake of clear water and a waterfall thirty feet high. All kinds of grotesque figures were found in the various chambers; but the only signs of animal life were discovered a short distance from the entrance, where a few bones were found, indicating that bears had carried their prey there. The cavern appears to be fully as large as the Mammoth Cave in Kentucky.

DR. D. PRAIN, Curator of the Calcutta Herbarium, has published in the Journal of the Asiatic Society of Bengal, and separately, a memoir on new Indian *Labiæ*. Nearly fifty species, belonging to upwards of twenty genera, are added to those described in the "Flora of British India." They are mostly from frontier extensions of the Empire, some from the east, some from the west; and nearly half of the species are new to science. Specially interesting among these is Prain's new genus *Microtana*, founded upon the *Plectranthus Patchouli*, Clarke—a plant cultivated in Assam; and a second species, collected by Griffith, probably in Assam. The first has since been found wild in Muneypore, Burma, Tonkin, and South-Eastern China. Two very distinct species of the same genus have also been recently discovered by Dr. A. Henry, in Central China.

THE new "Flora of France," which is being prepared by Prof. G. Bonnier, with the assistance of a number of botanists,

will be published under the auspices of the Minister of Public Instruction of France.

The annual publication of the very useful "Correspondance botanique" ceased with the death of its editor, Prof. E. Morren, of Liège. With the aim of supplying its place, the International Library, 4 Rue de la Sorbonne, Paris, has now issued a "Nouvelle Correspondance botanique: liste des botanistes de tous les pays, et des établissements, sociétés, et journaux de botanique."

PRINCE ROLAND BONAPARTE has issued, at his own expense, a handsome book on Corsica, recording his travels and the history of the island. He also gives a full bibliography relating to the subject.

A NEW quarterly scientific journal has made its first appearance in Paris, under the title *Revue des Sciences naturelles de l'Ouest*, devoted to the interests of zoology, botany, geology, mineralogy, anthropology, embryology, and teratology.

A MONTHLY journal of natural science, which may have many opportunities of doing good work, has just been started in Malta. It is called *The Mediterranean Naturalist*, and is edited by Mr. John H. Cooke, F.G.S.

THE "Dictionnaire d'Agriculture," by J. A. Barral and H. Sagnier, will soon be completed. Vol. iv. is nearly ready, and will be quickly followed by Vol. v.

A NEW edition of the Great Eastern Railway Company's "Tourist Guide to the Continent," edited by Mr. Percy Lindley, has been published. New editions of Mr. Lindley's "Walks in the Ardennes" and "Walks in Epping Forest" have also been published; and he has compiled two other useful little hand-books, "Walks in Holland" and "Holidays in Belgium."

MESSRS. GUY AND CO., Cork, send us "Guy's South of Ireland Pictorial Guide," in which are described and illustrated much fine scenery and various things interesting to students of natural history and archæology.

MESSRS. DULAU AND CO. have issued a catalogue of the works on geology which they are offering for sale.

THE results of an investigation concerning the cause of the insolubility of pure metals in acids are contributed by Dr. Weeren to the current number of the *Berichte*. De la Rive, so long ago as the year 1830, pointed out that chemically pure zinc is almost perfectly insoluble in dilute sulphuric acid. Hitherto, however, the hypotheses put forward attempting to account for this singular fact have been anything but satisfactory. The theory of Dr. Weeren is extremely simple, and is fully supported by the most varied experiments, physical and chemical. It may be stated as follows: "Chemically pure zinc and also many other metals in a state of purity are insoluble or only very slightly soluble in acids, because, at the moment of their introduction into the acid, they become surrounded by an atmosphere of condensed hydrogen, which under normal circumstances effectually protects the metal from further attack on the part of the acid." It is found that when a piece of pure zinc is immersed in dilute sulphuric acid, a slight action does occur during the first few succeeding moments, zinc sulphate and free hydrogen being formed in minute quantity. The free hydrogen, however, instead of escaping, becomes condensed by the molecular action of the zinc upon the surface of the latter, and is retained there with great tenacity as a thin mantle of highly compressed hydrogen gas, capable of affording perfect protection against further inroad of the acid. The experiments from which this simple and very probable explanation has been derived were briefly as follows. The amount of chemically pure zinc dissolved by the acid was first determined. It was, of course, an exceedingly minute quantity. Considering this amount as unity, it was next sought to determine what

difference would be effected by performing the experiment *in vacuo*, when of course the escape of the hydrogen would be greatly facilitated. The solubility was found under these circumstances to be increased sevenfold. Next the experiment was performed at the boiling temperature of the dilute acid, first when ebullition was prevented by increasing the pressure, and secondly when ebullition was unhindered, thus again facilitating the removal of the hydrogen film. In the first case, when ebullition was prevented, the solubility was practically the same as in the cold; while in the second case, with uninterrupted ebullition, the solubility was increased twenty-four times. Finally, experiments were made to ascertain the effect of introducing into the acid a small quantity of an oxidizing agent capable of converting the hydrogen film to water. When a little chromic acid was thus introduced the solubility was increased 175 times, and when hydrogen peroxide was employed the solubility was increased three-hundred-fold. The explanation of the ease with which the metal becomes attacked when the ordinary impurities are present is that the hydrogen is not then liberated upon the surface of the zinc, but rather upon the more electro-negative impurities, leaving the pure zinc itself open to the continued attack of the acid. The same of course occurs when a plate of platinum is placed in contact with a plate of pure zinc in the acid. The action of nitric acid, the only common acid which does attack pure metals, is evidently due to the oxidation of the hydrogen film by further quantities of the acid, with formation of water and production of the lower oxides of nitrogen, and even under certain circumstances of ammonia.

THE additions to the Zoological Society's Gardens during the past week include a Macaque Monkey (*Macacus cynomolgus*) from India, presented by Mr. R. Armstrong; two Senegal Touracous (*Corythaix persa*) from West Africa, presented by Sir Brandforth Griffith, Bart.; two Rock Thrushes (*Monticola saxatilis*) from Italy, presented by the Rev. Hubert D. Astley; two Larger Hill-Mynahs (*Gracula intermedia*) from China, deposited; two Mule Deer (*Cariacus macrotis*), three Summer Ducks (*Ex sponsa*), seven Mandarin Ducks (*Ex galericulata*), five Chilian Pintails (*Dafila spinicauda*), two Australian Wild Ducks (*Anas superciliosa*), a Spotted-billed Duck (*Anas pacilorhyncha*), three Night Herons (*Nycticorax griseus*), bred in the Gardens.

OUR ASTRONOMICAL COLUMN.

THE STELLAR CLUSTER χ PERSEI.—Mr. O. A. L. Pihl has completed a micrometric examination, begun in 1870, of the group χ of the great star cluster in Perseus, and the results are published by Grondahl and Son, Christiania. His survey includes all stars down to 10.6 magnitude, and a number of fainter ones down to 11.7 magnitude, the total number of stars measured being 236. The positions obtained, joined to those determined in the δ group by Prof. Krüger, with the Bonn heliometer, form one continuous survey of both components of the cluster. Prof. Vogel has determined the positions of 178 stars in the central part of the χ group, but Mr. Pihl's investigation covers more than four times the area. A comparison of the right ascensions of the stars measured by these two observers brought to light differences of a systematic character which appeared to be neither the result of observational errors nor of calculation. Upon closely inspecting the measures, Mr. Pihl found that his value for right ascension was less than Prof. Vogel's in the case of those stars which were brighter than the star to which positions were referred; whereas for all stars fainter than this his value was larger, and the fainter the star the greater the difference.

A ring and a bar micrometer were used in the observations, and the reductions were made by the ordinary method of taking half the sum of the moments of ingress and egress in the calculation—a mode of proceeding which depends upon the supposition that the half sum denotes the instant of the passage of